UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/076,370	02/19/2002	Marc Alizon	2356-0011-10	2811

22852 7590 11/15/2006

FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER LLP
901 NEW YORK AVENUE, NW
WASHINGTON, DC 20001-4413

EXAMINER	
PARKIN, JEFFREY S	

ART UNIT	PAPER NUMBER
1648	

DATE MAILED: 11/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/076,370	ALIZON ET AL.	
	Examiner	Art Unit	
	Jeffrey S. Parkin, Ph.D.	1648	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 August 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *23-28 and 32-35* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *23-28 and 32-35* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Detailed Office Action

Status of the Claims

Acknowledgement is hereby made of receipt and entry of the communication filed 22 August, 2006. Claims 23-28 and 32-35 are pending in the instant application.

35 U.S.C. § 112, First Paragraph

The following is a quotation of the first paragraph of 35 U.S.C. § 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 23-28 and 32-35 stand rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. *Regents of the University of California v. Eli Lilly & Co.*, 119 F.3d 1559, 43 U.S.P.Q.2d 1398, (Fed. Cir. 1997). *Fiers v. Revel Co.*, 984 F.2d 1164, 25 U.S.P.Q.2d 1601, (Fed. Cir. 1993). *Amgen, Inc. v. Chugai Pharmaceutical Co.*, 927 F.2d 1200, 18 U.S.P.Q.2d 1016, (Fed. Cir. 1991). *Enzo Biochem, Inc. v. Gen-Probe, Inc.*, 296 F.3d 1316, 63 U.S.P.Q.2d 1609, (Fed. Cir. 2002). *Univ. of Rochester v. G.D. Searle & Co., Inc.*, 358 F.3d 916, 920, 69 U.S.P.Q.2d 1886, (Fed. Cir. 2004). *In re Rasmussen*, 650 F.2d 1212, 211 U.S.P.Q. 323 (C.C.P.A. 1981). *In re Wertheim*, 541 F.2d 257, 191 U.S.P.Q. 90 (C.C.P.A. 1976). *University of Rochester* v.

G. D. Searle & Co., Inc., 358 F.3d 916, 69 U.S.P.Q.2d 1886 (C.A.F.C. 2004). Claims 23-28 are directed toward immunogenic HIV-1 Env polypeptides, and methods of using said peptides, comprising core regions (e.g., aa 37-130, 211-289, 488-530, 490-620, and 680-700) and at least one amino acid substitution at a specified position (e.g., aa 8, 9, 90, 102, 131, 133, 140, 156, 172, 177, 179, 185, 188, etc.), wherein said amino acid is selected from one of three prototypical HIV-1 isolates (e.g., BRU, ARV2, and ELI). The claims still encompass single or multiple amino acid substitutions over a large number of different locations. Claims 34 and 35 are directed toward an HIV-1 Env peptide comprising a LAV_{MAL} core sequence (e.g., aa 34-530) and include additional limitations specifying that at least one amino acid substitution must be present at a specified position (e.g., aa 8, 9, 90, 102, 131, 133, 140, 156, 172, 177, 179, 185, 188, etc.), wherein said amino acid is selected from one of three prototypical HIV-1 isolates (e.g., BRU, ARV2, and ELI).

As previously set forth, in order to satisfy the written description requirement, a patent specification must describe the claimed invention in sufficient detail that one skilled in the art can reasonably conclude that the inventor had **possession** of the claimed invention. See, e.g., *Vas-Cath, Inc., v. Mahurkar*, 935 F.2d at 1563, 19 U.S.P.Q.2d at 1116. The issue raised in this application is whether the original application provides adequate support for the broadly claimed genus of **HIV Env variant sequences.** An applicant shows possession of the claimed invention by describing the claimed invention with all of its limitations using such descriptive means as words, structures, figures, diagrams, and formulas that **fully set forth the claimed invention.** *Lockwood v. American Airlines, Inc.*, 107 F.3d 1565, 1572, 41 U.S.P.Q.2d 1961, 1966 (Fed. Cir. 1997). The claimed invention as a whole may not be adequately described where an invention is described solely in

terms of a method of its making coupled with its function and there is no described or art-recognized correlation or relationship between the structure of the invention and its function. **A biomolecule sequence (e.g., epitope) described only by functional characteristic, without any known or disclosed correlation between that function and the structure of the sequence, normally is not a sufficient identifying characteristic for written description purposes, even when accompanied by a method of obtaining the biomolecule of interest.** *In re Bell*, 991 F.2d 781, 26 U.S.P.Q.2d 1529 (Fed. Cir. 1993). *In re Deuel*, 51 F.3d 1552, 34 U.S.P.Q.2d 1210 (Fed. Cir. 1995). A lack of adequate written description issue also arises if the knowledge and level of skill in the art would not permit one skilled in the art to immediately envisage the product claimed from the disclosed process. See, e.g., *Fujikawa v. Wattanasin*, 93 F.3d 1559, 1571, 39 U.S.P.Q.2d 1895, 1905 (Fed. Cir. 1995). The court noted in this decision that **a laundry list disclosure of every possible moiety does not constitute a written description of every species in a genus because it would not reasonably lead those skilled in the art to any particular species.**

An applicant may show possession of an invention by disclosure of drawings or **structural chemical formulas** that are sufficiently detailed to show that applicant was in possession of the claimed invention as a whole. An applicant may also show that an invention is complete by disclosure of sufficiently detailed, relevant identifying characteristics which provide evidence that applicant was in possession of the claimed invention, i.e., complete or partial structure, other physical and/or chemical properties, functional characteristics when coupled with a known or disclosed correlation between function and structure, or some combination of such characteristics. For some biomolecules, examples of identifying characteristics include a nucleotide or **amino acid sequence**, chemical structure, **binding affinity, binding**

specificity, and molecular weight. The written description requirement may be satisfied through disclosure of function and minimal structure when there is a well-established correlation between structure and function. Without such a correlation, the capability to recognize or understand the structure from the mere recitation of function and minimal structure is highly unlikely. In the latter case, **disclosure of function alone is little more than a wish for possession; it does not satisfy the written description requirement.** *Regents of the University of California v. Eli Lilly*, 119 F.3d 1559, 1566, 43 U.S.P.Q.2d 1398, 1404, 1406 (Fed. Cir. 1997), *cert. denied*, 523 U.S. 1089 (1998). *In re Wilder*, 736 F.2d 1516, 1521, 222 U.S.P.Q. 369, 372-3 (Fed. Cir. 1984). Factors to be considered in determining whether there is sufficient evidence of possession include the level of skill and knowledge in the art, partial structure, physical and/or chemical properties, functional characteristics alone or coupled with a known or disclosed correlation between structure and function, and the method of making the claimed invention.

As previously noted, perusal of the disclosure reveals the cloning and characterization of a novel human immunodeficiency virus type 1 originally designated lymphadenopathy associated virus (LAV) MAL, or LAV_{MAL}. A proviral molecular clone was obtained and complete nucleotide isolate of this sequence ascertained (see Figs. 7A-7I). The deduced amino acid sequences of the various viral structural and non-structural genes were also set forth in Figure 7. **Specific envelope polypeptide fragments were set forth on p. 36 of the specification (e.g., 1-530, 34-530, 531-877, 680-700, 37-130, 211-289, 488-530, and 490-620).** It should be noted that these designations actually referenced LAV_{BRU} amino acid sequences, not specific LAV_{MAL} polypeptides. Thus, the skilled artisan might conclude that applicants contemplated making and using these specific envelope polypeptides. However, the skilled artisan would

not reasonably conclude that applicants were in possession of the claimed invention.

First, **the disclosure fails to identify specific HIV-1_{MAL} immunogenic fragments of the claimed lengths and substitutions.** The specification only sets forth the deduced amino acid sequences of the full-length non-structural and structural genes as set forth in Figure 7 and the specific Env fragments set forth on p. 36. Figure 3 also fails to identify immunogenic MAL peptides. This figure simply provides an amino acid comparison between MAL, BRU, ARV-2, and ELI to assess their genetic relatedness. The figure does not identify or lead the skilled artisan to any particular immunogenic fragment, particularly one carrying amino acid substitutions. Second, **the disclosure fails to perform any type of comparison wherein specific immunogenic fragments from isolate MAL are identified and acceptable amino acid substitutions are performed.** It is well-known in the art that subtle perturbations in an amino acid sequence can profoundly affect both the immunogenic and antigenic properties of any given polypeptide. Thus, the skilled artisan can only hazard a guess as to which substituted MAL fragments will remain immunogenic. Third, **the disclosure fails to provide adequate support for MAL-specific polypeptides the recited lengths (e.g., 21, 43, 79, 94, and 131 aa).** The only numerical limitations set forth in the disclosure recite immunogenic polypeptides or fusion proteins which may contain between 5 and 150 amino acids (see p. 28). Thus, support does not exist for the current size limitations. Nothing in the disclosure directs the skilled artisan toward any particular MAL immunogenic fragment or any fragment carrying amino acid substitutions. The disclosure fails to identify those molecular determinants modulating the immunogenicity of any given polypeptide fragment. Clearly, the claimed invention simply represents an attempt by applicants to capture subject matter which was neither

described nor contemplated at the time of filing. Accordingly, the skilled artisan would reasonably conclude that applicants were not in possession of the claimed invention at the time of filing.

Response to Arguments

Applicants reference a previously submitted declaration by Dr. Marie-Lise Gougeon in support of their position. Dr. Gougeon asserts that upon carefully reading the specification the skilled artisan would be able to identify conserved and non-conserved amino acids and identify suitable immunogenic polypeptide candidates. Dr. Gougeon's declaration appears to misunderstand the crux of the rejection. The crux of the rejection is not whether or not the skilled artisan would be capable of making the claimed peptides, but whether or not the inventors were in **possession** of the claimed invention at the time of filing. As previously set forth, the disclosure provided a comparison between MAL, BRU, ARV-2, and ELI to assess their genetic relatedness. The figure does not identify or lead the skilled artisan to any particular immunogenic fragment, particularly one carrying any one of a number of amino acid substitutions. The skilled artisan upon perusal of the disclosure would reasonably conclude that applicants were in possession of the HIV-1 Env polypeptides set forth in page 36 of the specification. Specifically, applicants clearly contemplated making and using polypeptides corrsponding to regions 1-530, 34-530, 531-877, 680-700, 37-130, 211-289, 488-530, and 490-620. However, nothing in the disclosure sets forth any additional Env polypeptide fragments. The disclosure is also silent concerning the generation of polypeptide variants having amino acid substitutions at the recited positions (e.g., 8, 9, 90, 102, 131, etc.). The references cited by Dr. Gougeon also fail to remedy the defects in the specification. The crux of the rejection is whether or not the inventors were in **possession** of the claimed invention. The issue

is not whether or not the skilled artisan could make the claimed polypeptides but whether or not applicants were in possession of the claimed polypeptides. There is nothing in the disclosure that leads the skilled artisan to any particular polypeptide variant. Accordingly, the rejection is proper and hereby maintained.

Finality of Office Action

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 C.F.R. § 1.136(a). **A SHORTENED STATUTORY PERIOD FOR RESPONSE TO THIS FINAL ACTION IS SET TO EXPIRE THREE MONTHS FROM THE DATE OF THIS ACTION. IN THE EVENT A FIRST RESPONSE IS FILED WITHIN TWO MONTHS OF THE MAILING DATE OF THIS FINAL ACTION AND THE ADVISORY ACTION IS NOT MAILED UNTIL AFTER THE END OF THE THREE-MONTH SHORTENED STATUTORY PERIOD, THEN THE SHORTENED STATUTORY PERIOD WILL EXPIRE ON THE DATE THE ADVISORY ACTION IS MAILED, AND ANY EXTENSION FEE PURSUANT TO 37 C.F.R. § 1.136(a) WILL BE CALCULATED FROM THE MAILING DATE OF THE ADVISORY ACTION. IN NO EVENT WILL THE STATUTORY PERIOD FOR RESPONSE EXPIRE LATER THAN SIX MONTHS FROM THE DATE OF THIS FINAL ACTION.**

Correspondence

Any inquiry concerning this communication should be directed to Jeffrey S. Parkin, Ph.D., whose telephone number is (571) 272-0908. The examiner can normally be reached Monday through Thursday from 10:30 AM to 9:00 PM. A message may be left on the examiner's voice mail service. If attempts to reach the examiner are unsuccessful, the examiner's supervisor, Bruce R. Campell, Ph.D., can be reached at (571) 272-0974. Direct general status inquiries to the Technology Center 1600 receptionist at (571) 272-1600. Informal communications may be submitted to the Examiner's RightFAX account at (571) 273-0908.

Applicants are reminded that the United States Patent and Trademark Office (Office) requires most patent related correspondence to be: a) faxed to the Central FAX number (571-273-8300) (updated as of July 15, 2005), b) hand carried or delivered to the Customer Service Window (now located at the Randolph

Building, 401 Dulany Street, Alexandria, VA 22314), c) mailed to the mailing address set forth in 37 C.F.R. § 1.1 (e.g., P.O. Box 1450, Alexandria, VA 22313-1450), or d) transmitted to the Office using the Office's Electronic Filing System. This notice replaces all prior Office notices specifying a specific fax number or hand carry address for certain patent related correspondence. For further information refer to the Updated Notice of Centralized Delivery and Facsimile Transmission Policy for Patent Related Correspondence, and Exceptions Thereto, 1292 Off. Gaz. Pat. Office 186 (March 29, 2005).

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Respectfully,

Jeffrey S. Parkin, Ph.D.
Primary Examiner
Art Unit 1648

13 November, 2006